

Figure 10 explains the cosmographic system of the same astronomer. In the centre we see the Earth, externally surrounded by fire [which is precisely opposite to the truth, according to the fundamental principles of modern geology; but the reader will understand that we are not attempting here to expose the errors of Ptolemæus; we confine ourselves to a description of his system]. Above the Earth spreads the first crystalline heaven, which carries and conveys the Moon. In the second and third crystal heavens the planets Mercury and Venus respectively describe their epicycles. The fourth heaven belongs to the Sun; wherein it traverses the circle known as the ecliptic. The three last celestial spheres include Mars, Jupiter, and Saturn. Beyond these planets shines the heaven of the fixed stars. It rotates upon itself from east to west, with an inconceivable rapidity and an incalculable force of impulsion, for it is *this* which sets in motion all the fabulous machine.

Ptolemæus places on the extreme confines of his vast Whole the eternal abode of the blessed. Thrice happy they in having no further cause to concern themselves

about so terrible a system; a system far from transparent, notwithstanding all its crystal!

The treatise in which the Greek astronomer summed up his labours remained for generations in high favour with the learned, and especially with the Arabs, whose privilege and renown it is to have preserved intact the precious deposit of the sciences, when the Europe of the twelfth and thirteenth centuries was plunged in the night-shadows of the profoundest ignorance. The Arabs designated the work of Ptolemæus, *Almagest*—that is, the Great Book, the Book *par excellence*. [The Greek title runs, *Μεγάλη Σύνταξις τῆς Ἀστρονομίας*, and the Arabs probably named it *Μεγίστη*, the "Greatest," to distinguish it from another work by Ptolemæus of inferior value. From *Megiste*, by prefixing the Arabic article *al*, "the," would come *Almagest*. It is divided into thirteen books. An admirable edition was issued at Paris, by Halma, in 1816–20. The great geographical treatise of Ptolemæus is entitled *Γεωγραφικὴ Ὑψήγησις* (*Geōgraphikē Hyphēgēsis*). It is in eight books.]

Mohammed, the founder of Islam, endorsed the system of Ptolemæus as a dogma which God himself had sanctioned. It is, therefore, still accredited and venerated throughout the East.

We have, nevertheless, to note one discordance in the universal favour which crowned the cosmography of the Greek. The unbeliever was a king of Castile, whose surname of "The Wise" has been ratified by posterity—Alphonso X., the Wise, or the Astronomer, who lived in the thirteenth century. The complexities

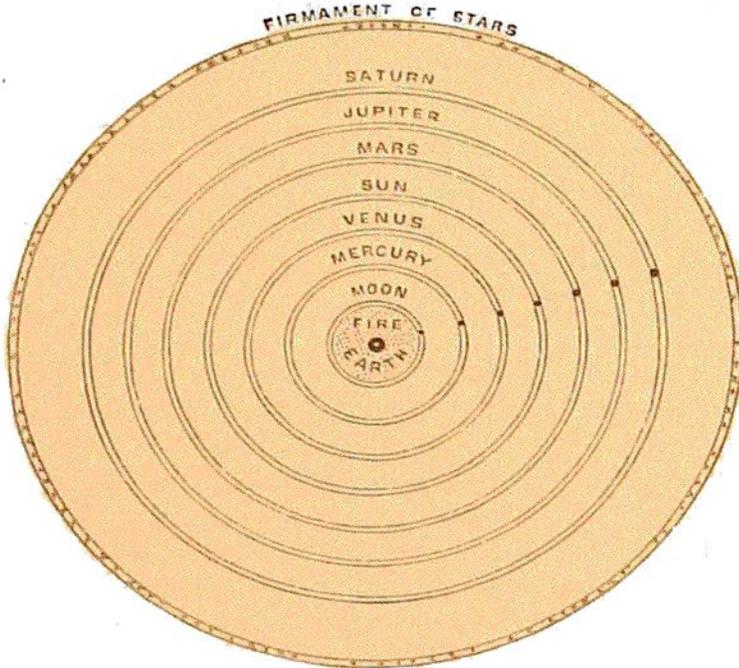


FIG. 10.—COSMOGRAPHY OF PTOLEMÆUS.